

SOIL REMEDY ALTERNATIVE XX: SOIL VAPOR EXTRACTION (Capitol Costs)

Original acres:	1.50					Total:	Original	RADD
RADD acres:	0.8						\$1,432,196	\$852,920
	Original	RADD				Original	RADD	
1. Power to Site							\$25,000	\$25,000
Assume	1	1 to drop electrical conncection to system, including: - Installation by a qualified electrician; - Installation of main disconnect; - Installation of an electrical meter face;						
2. SVE System Equipment							\$225,000	\$148,500
Assume	1	Prewired skid mounted 10000 scfm SVE system, including: 2 X 500 Hp PD Blowers 2 X 500 gallon vapor/liquid separator with transfer pump 5,000 gallon holding tank 2 X 5000 lb carbon vessels Control system w/ telemetry						
3. SVE System Installation							\$651,682	\$356,217
Assume	131	70 SVE wells at	\$3,366.00	\$3,366.00 per well			\$440,946	\$235,171
Assume	4	2 truck loads of IDW	\$385.00	\$385.00 per load			\$1,540	\$821
Assume	5	3 tons of hazardous IDW	\$132.00	\$132.00 per ton			\$660	\$352
Assume	44	23 tons of non-hazardous IDW	\$38.00	\$38.00 per ton			\$1,672	\$892
Assume	24	13 IDW profile samples	\$758.00	\$758.00 per sample			\$18,192	\$9,702
Assume	1,476	787 feet of trenching at	\$30.00	\$30.00 per linear foot			\$44,280	\$23,616
Assume	1,476	787 feet of piping at	\$30.00	\$30.00 per linear foot			\$44,280	\$23,616
Assume	1,476	787 feet of resurfacing at	\$12.00	\$12.00 per linear foot			\$17,712	\$9,446
Assume	131	70 wellhead fittings at	\$400.00	\$400.00 per well			\$52,400	\$27,947
Assume	400	213 sqft concrete pad at	\$11.00	\$11.00 per sqft			\$4,400	\$2,347
Assume	1	0.5 fencing to enclose system	\$3,400.00	\$2,266.67			\$3,400	\$1,133
Assume	8	4 TO-14 Analysis at Start-up	\$275.00	\$275.00 per sample			\$2,200	\$1,173
Assume	1	1 Air Emissions Permit	\$20,000.00	\$20,000.00 lump sum			\$20,000	\$20,000
4. Installation Direction and Oversight							\$143,315	\$76,435
Assume	655	349 Project Scientist I	\$113	\$113 per ton delivered			\$74,015	\$39,475
Assume	295	157 Senior Technician	\$86	\$86 per hour			\$25,370	\$13,531
Assume	76	41 hours of travel to/from the site	\$105	\$105 per hour			\$7,980	\$4,256
Assume	95	51 per diem/lodging/truck/fuel	\$260	\$260 per hour			\$24,700	\$13,173
Assume	10	5 airfare and parking costs of	\$650	\$650 per hour			\$6,500	\$3,467
Assume	19	10 field supplies cost of	\$250	\$250 per hour			\$4,750	\$2,533
5. Project Management & Reporting							\$148,500	\$104,615
Assume	1	1 Installation Report & Drawings	\$40,000.00	\$40,000.00 Lump Sum			\$40,000	\$40,000
Assume	1	1 AMEC project management at 10% of all other cost					\$108,500	\$64,615
8. Contingency							\$238,699	\$142,153
Assume	1	1 Continegency	20%				\$238,699	\$142,153

SOIL REMEDY ALTERNATIVE XX: SOIL VAPOR EXTRACTION (Annual Costs)

Original acres:		1.50			Total:		Original	RADD
RADD acres:		0.8					\$516,715	\$324,430
		Original	RADD			Original	RADD	
1. Utilities/Carbon								\$275,298 \$137,649
Assume	400	400	Total SVE system horsepower					
Assume	8760	8,760	System run-time (hours/year)					
Assume	\$0.10	0	per kilowatt hour			Electrical Total	\$261,298	\$130,649
Assume	4	4	Carbon changes at	\$3,500		per change	\$14,000	\$7,000
2. Fluid Profiling/Air Emissions Analytical Costs							\$4,590	\$2,448
Assume	2	1	VOC in water analysis	\$125	\$125 per sample		\$250	\$133
Assume	2	1	SVOC in water analysis	\$250	\$250 per sample		\$500	\$267
Assume	2	1	RCRA metals in water analysis	\$100	\$100 per sample		\$200	\$107
Assume	2	1	TPH in water analysis	\$60	\$60 per sample		\$120	\$64
Assume	2	1	RCI in water analysis	\$110	\$110 per sample		\$220	\$117
Assume	12	6	TO-14 analysis	\$275	\$275 per sample		\$3,300	\$1,760
3. System Operation							\$86,963	\$86,963
Assume	1	1	technician					
Assume	6	6	hours of travel to/from the site from Houston, TX	\$86	\$86 per hour		\$516	\$516
Assume	32	17	hours of system inspection, sampling, and maintenance	\$88	\$88 per hour		\$2,816	\$1,502
Assume	5	3	per diem/lodging/truck/fuel	\$260	\$260 per day		\$1,300	\$693
Assume	1	1	airfare and parking costs of	\$650	\$650 round trip		\$650	\$650
Assume	1	1	field supply cost of	\$100	\$100 per inspection		\$100	\$100
Assume	12	12	events at	\$5,318	\$5,318 per event		\$63,816	\$63,816
Assume	1	1	10% of wells to be replaced annually at 50% cost	\$23,147	\$23,147 lump sum		\$23,147	\$23,147
4. Fluid Disposal							\$12,600	\$6,720
Assume	4,000	2,133	gallons of hazardous water disposal	\$2.50	\$2.50 per gallon		\$10,000	\$5,333
Assume	20	11	hours of vacuum truck (includes transport)	\$95	\$95 per hour		\$1,900	\$1,013
Assume	2	1	Truck washout	\$350	\$350 each		\$700	\$373
5. Project Management & Reporting							\$51,145	\$36,578
Assume	4	4	System operation report	\$3,000	\$3,000 Lump Sum		\$12,000	\$12,000
Assume	1	1	AMEC project management at 10% of all other cost				\$39,145	\$24,578
8. Contingency							\$86,119	\$54,072
Assume	1	1	Continegency	20%			\$86,119	\$54,072

SOIL REMEDY ALTERNATIVE XX: SOIL VAPOR EXTRACTION (Decommissioning Costs)

Original acres:	1.50				Total:	Original	RADD	
RADD acres:	0.8					\$374,675	\$232,444	
	Original	RADD			Original	RADD		
1. System Decommissioning						\$157,245	\$84,331	
Assume	1	1 Mob/Demob	\$1,000	\$1,000 each		\$1,000	\$1,000	
Assume	30	16 Equipment Rental	\$350	\$350 days		\$10,500	\$5,600	
Assume	30	16 Labor (4 man crew, 10 hrs/day)	\$1,800	\$1,800 days		\$54,000	\$28,800	
Assume	30	16 Total days of contractor per diem (4 man crew)	\$130	\$130 man/day		\$3,900	\$2,080	
Assume	13	7 truck loads of waste	\$385	\$385 per load		\$5,005	\$2,669	
Assume	20	11 tons of hazardous IDW	\$132	\$132 per ton		\$2,640	\$1,408	
Assume	180	96 tons of non-hazardous IDW	\$38	\$38 per ton		\$6,840	\$3,648	
Assume	131	70 Wells plugged and abandoned (est. depth 20 ft)	\$560	\$560 each		\$73,360	\$39,125	
2. AMEC Oversight						\$23,442	\$13,109	
Assume	20	11 per diem/lodging/truck/fuel	\$260	\$260 per day		\$5,200	\$2,773	
Assume	197	105 hours Senior Technician at	\$86	\$86 per hour		\$16,942	\$9,036	
Assume	2	2 airfare	\$650	\$650 per trip		\$1,300	\$1,300	
3. Confirmation Sampling and Reporting						\$53,158	\$28,654	
Assume	41	22 samples (24 samples per acre)						
Assume	41	22 Confirmation sample	\$640	\$640 per sample		\$26,240	\$13,995	
Assume	6	3 days of Geoprobe	\$2,500	\$2,500 per day		\$15,000	\$8,000	
Assume	10	5 hours per technician/day for	6	6 days per event				
Assume	6	3 hours sample shipping at	1	1 per event				
Assume	12	6 hours mob for technician at	1	1 per event				
Assume	78	42 hours for technician at	\$86	\$86 per hour		\$6,708	\$3,578	
Assume	6	3 per diem/lodging/truck/fuel	\$260	\$260 per event		\$1,560	\$832	
Assume	1	1 airfare	\$650	\$650 per trip		\$650	\$650	
Assume	6	3 days renatl equipment at	\$500	\$500 per day		\$3,000	\$1,600	
5. Project Management & Reporting						\$78,385	\$67,609	
Assume	1	1 Annual Report	\$50,000	\$50,000 per report		\$50,000	\$50,000	
Assume	1	1 AMEC project management at 10% of all other cost				\$28,385	\$17,609	
8. Contingency						\$62,446	\$38,741	
Assume	1	1 Continegency	20%			\$62,446	\$38,741	
						Capitol \$	\$1,432,196	\$852,920
						Annual \$	\$516,715	\$324,430
						Decommision \$	\$374,675	\$232,444
						TOTAL \$:	\$2,323,587	\$1,409,794

SOIL REMEDY ALTERNATIVE S4c: SOIL VAPOR EXTRACTION (Capitol Costs)

remedy area: 1.50
0.8 **0.8 acres**
Original RADD

Total: \$1,432,196 \$806,866

				Original	RADD			
1. Power to Site							\$25,000	\$25,000
Assume	1	1	to drop electrical connection to system, including: - Installation by a qualified electrician; - Installation of main disconnect; - Installation of an electrical meter face;					
2. SVE System Equipment							\$225,000	\$112,500
Assume	1	1	Prewired skid mounted 10000 scfm SVE system, including: 1 X 500 Hp PD Blowers 1 X 500 gallon vapor/liquid separator with transfer pump 2,500 gallon holding tank 2 X 2500 lb carbon vessels Control system w/ telemetry					
3. SVE System Installation							\$651,682	\$357,328
Assume	131	70	SVE wells at	\$3,366.00	\$3,366	per well	\$440,946	\$235,171
Assume	4	2	truck loads of IDW	\$385.00	\$385	per load	\$1,540	\$821
Assume	5	3	tons of hazardous IDW	\$132.00	\$132	per ton	\$660	\$352
Assume	44	23	tons of non-hazardous IDW	\$38.00	\$38	per ton	\$1,672	\$892
Assume	24	13	IDW profile samples	\$758.00	\$758	per sample	\$18,192	\$9,702
Assume	1,476	787	feet of trenching at	\$30.00	\$30	per linear foot	\$44,280	\$23,616
Assume	1,476	787	feet of piping at	\$30.00	\$30	per linear foot	\$44,280	\$23,616
Assume	1,476	787	feet of resurfacing at	\$12.00	\$12	per linear foot	\$17,712	\$9,446
Assume	131	70	wellhead fittings at	\$400.00	\$400	per well	\$52,400	\$27,947
Assume	400	213	sqft concrete pad at	\$11.00	\$11	per sqft	\$4,400	\$2,347
Assume	1	1.0	fencing to enclose system	\$3,400.00	\$2,244		\$3,400	\$2,244
Assume	8	4	TO-14 Analysis at Start-up	\$275.00	\$275	per sample	\$2,200	\$1,173
Assume	1	1	Air Emissions Permit	\$20,000.00	\$20,000	lump sum	\$20,000	\$20,000
4. Installation Direction and Oversight							\$143,315	\$76,435
Assume	655	349	Project Scientist I	\$113	\$113	per ton delivered	\$74,015	\$39,475
Assume	295	157	Senior Technician	\$86	\$86	per hour	\$25,370	\$13,531
Assume	76	41	hours of travel to/from the site	\$105	\$105	per hour	\$7,980	\$4,256
Assume	95	51	per diem/lodging/truck/fuel	\$260	\$260	per hour	\$24,700	\$13,173
Assume	10	5	airfare and parking costs of	\$650	\$650	per hour	\$6,500	\$3,467
Assume	19	10	field supplies cost of	\$250	\$250	per hour	\$4,750	\$2,533
5. Project Management & Reporting							\$148,500	\$101,126
Assume	1	1	Installation Report & Drawings	\$40,000.00	\$40,000	Lump Sum	\$40,000	\$40,000
Assume	1	1	AMEC project management at 10% of all other cost				\$108,500	\$61,126
8. Contingency							\$238,699	\$134,478
Assume	1	1	Contingency	20%			\$238,699	\$134,478

SOIL REMEDY ALTERNATIVE S4c: SOIL VAPOR EXTRACTION (Annual Costs)

remedy area:	1.50						Total:	\$516,715	\$278,013
	0.8	0.8	acres						
	Original			Original					
1. Utilities/Carbon								\$275,298	\$137,649
Assume	400	400	Total SVE system horsepower						
Assume	8760	4,380	System run-time (hours/year)						
Assume	\$0.10	0	per kilowatt hour				Electrical Total	\$261,298	\$130,649
Assume	4	4	Carbon changes at	\$3,500			per change	\$14,000	\$7,000
2. Fluid Profiling/Air Emissions Analytical Costs								\$4,590	\$4,590
Assume	2	2	VOC in water analysis	\$125	\$125	per sample		\$250	\$250
Assume	2	2	SVOC in water analysis	\$250	\$250	per sample		\$500	\$500
Assume	2	2	RCRA metals in water analysis	\$100	\$100	per sample		\$200	\$200
Assume	2	2	TPH in water analysis	\$60	\$60	per sample		\$120	\$120
Assume	2	2	RCI in water analysis	\$110	\$110	per sample		\$220	\$220
Assume	12	12	TO-14 analysis	\$275	\$275	per sample		\$3,300	\$3,300
3. System Operation								\$86,963	\$49,657
Assume	1	1	technician						
Assume	6	3	hours of travel to/from the site from Houston, TX	\$86	\$86	per hour		\$516	\$258
Assume	32	16	hours of system inspection, sampling, and maintenance	\$88	\$88	per hour		\$2,816	\$1,408
Assume	5	3	per diem/lodging/truck/fuel	\$260	\$260	per day		\$1,300	\$693
Assume	1	1	airfare and parking costs of	\$650	\$650	round trip		\$650	\$650
Assume	1	1	field supply cost of	\$100	\$100	per inspection		\$100	\$100
Assume	12	12	events at	\$5,318	\$5,318	per event		\$63,816	\$37,312
Assume	1	1	10% of wells to be replaced annually at 50% cost	\$23,147	\$12,345	lump sum		\$23,147	\$12,345
4. Fluid Disposal								\$12,600	\$6,720
Assume	4,000	2,133	gallons of hazardous water disposal	\$2.50	\$2.50	per gallon		\$10,000	\$5,333
Assume	20	11	hours of vacuum truck (includes transport)	\$95	\$95	per hour		\$1,900	\$1,013
Assume	2	1	Truck washout	\$350	\$350	each		\$700	\$373
5. Project Management & Reporting								\$51,145	\$33,062
Assume	4	4	System operation report	\$3,000	\$3,000	Lump Sum		\$12,000	\$12,000
Assume	1	1	AMEC project management at 10% of all other cost					\$39,145	\$21,062
8. Contingency								\$86,119	\$46,336
Assume	1	1	Contingency	20%				\$86,119	\$46,336

SOIL REMEDY ALTERNATIVE S4c: SOIL VAPOR EXTRACTION (Decommissioning Costs)

remedy area:	1.50 0.8 Original	0.8	acres				Total:	\$374,675	\$232,444
1. System Decommissioning				Original				\$157,245	\$84,331
Assume	1	1	Mob/Demob	\$1,000	\$1,000	each		\$1,000	\$1,000
Assume	30	16	Equipment Rental	\$350	\$350	days		\$10,500	\$5,600
Assume	30	16	Labor (4 man crew, 10 hrs/day)	\$1,800	\$1,800	days		\$54,000	\$28,800
Assume	30	16	Total days of contractor per diem (4 man crew)	\$130	\$130	man/day		\$3,900	\$2,080
Assume	13	7	truck loads of waste	\$385	\$385	per load		\$5,005	\$2,669
Assume	20	11	tons of hazardous IDW	\$132	\$132	per ton		\$2,640	\$1,408
Assume	180	96	tons of non-hazardous IDW	\$38	\$38	per ton		\$6,840	\$3,648
Assume	131	70	Wells plugged and abandoned (est. depth 20 ft)	\$560	\$560	each		\$73,360	\$39,125
2. AMEC Oversight								\$23,442	\$13,109
Assume	20	11	per diem/lodging/truck/fuel	\$260	\$260	per day		\$5,200	\$2,773
Assume	197	105	hours Senior Technician at	\$86	\$86	per hour		\$16,942	\$9,036
Assume	2	2	airfare	\$650	\$650	per trip		\$1,300	\$1,300
3. Confirmation Sampling and Reporting								\$53,158	\$28,654
Assume	41	22	samples (24 samples per acre)						
Assume	41	22	Confirmation sample	\$640	\$640	per sample		\$26,240	\$13,995
Assume	6	3	days of Geoprobe	\$2,500	\$2,500	per day		\$15,000	\$8,000
Assume	10	5	hours per technician/day for	6	6	days per event			
Assume	6	3	hours sample shipping at	1	1	per event			
Assume	12	6	hours mob for technician at	1	1	per event			
Assume	78	42	hours for technician at	\$86	\$86	per hour		\$6,708	\$3,578
Assume	6	3	per diem/lodging/truck/fuel	\$260	\$260	per event		\$1,560	\$832
Assume	1	1	airfare	\$650	\$650	per trip		\$650	\$650
Assume	6	3	days reatl equipment at	\$500	\$500	per day		\$3,000	\$1,600
5. Project Management & Reporting								\$78,385	\$67,609
Assume	1	1	Annual Report	\$50,000	\$50,000	per report		\$50,000	\$50,000
Assume	1	1	AMEC project management at 10% of all other cost					\$28,385	\$17,609
8. Contingency								\$62,446	\$38,741
Assume	1	1	Continegency	20%				\$62,446	\$38,741

Capitol \$	\$1,432,196	\$852,920
Annual \$	\$516,715	\$324,430
Decommision \$	\$374,675	\$232,444

TOTAL \$: \$2,323,587 \$1,409,794